LOCKHEED MARTIN

Lockheed Martin Energy Systems, Inc.
Command Media

Number: Y10-012
Rev. Date: 06/30/98
Supersedes: 04/01/98
Page: 1 of 29

Energy Systems
Management Control

Subject: Hazard Identification Planning for Maintenance and New Work Tasks

/s/ R. J. Stalliongs 6/11/98

Procedure Written by Date

Approvals:

/s/ D. R. Smith 6/11/98

Functional PCCB Chairperson Date

6/11/98

Plant Functional Policy Coordinator Date

/s/ S. G. Brown 6/11/98

Command Media Office Date

This procedure has been reviewed by an Authorized Derivative Classifier and has been determined to be UNCLASSIFIED. This review does not constitute clearance for public release.

6/30/98

Subject: Hazard Identification Planning for Maintenance and New Work Tasks

Name & Date Effective Date

REVISION LOG

Revision Date	Revision Description	Affected Page(s)
06/30/98	Nonintent changes in response to operations assessment input (PMR 98-06-287).	3-6,8,9, &12-27
04/01/98	Nonintent changes were incorporated via PMR 98-03-249.	6, 8, 10, & 19
03/04/98	This is a complete revision to the procedure, including changing the title from "Requesting Maintenance Services" to "Hazard Identification Planning for Maintenance and New Work Tasks." It incorporates a joint operation/maintenance process to identify job hazards and planning criteria. Y10-012 is also used to identify hazard when planning new work processes in accordance with Y10-190, *New Activity Start-up Requirements*. (PMR 97-02-229)	All
01/16/98	This is a nonintent revision to the procedure to add the Tri-N-Octyl Phosphine Oxide definition at Item V on Appendix A (Pg. 13) and renumber the next item as W; an approval block to the bottom of Pg. 16, which moves the Involvement block to Pg. 17; and add Item 11 to Appendix C on Pg. 20.	13, 16, 17, 20
10/31/97	This is a complete revision to the procedure.	All

CONTENTS

PURPOSE

To provide a defined process for requesting maintenance services. To provide a process to conduct hazard identification for new work tasks and maintenance and ensuring identification of the health and safety hazards associated with the work activity (including those associated with the structures, systems, and components themselves) and the determination of the appropriate work activity planning requirements.

APPLIES TO

Customers requesting maintenance services from the Facilities Management Organization and organizations using Y10-190 to plan new work tasks.. An implementation schedule for this procedure revision will be approved by each organization's senior management within 30 days of the effective date of this procedure.

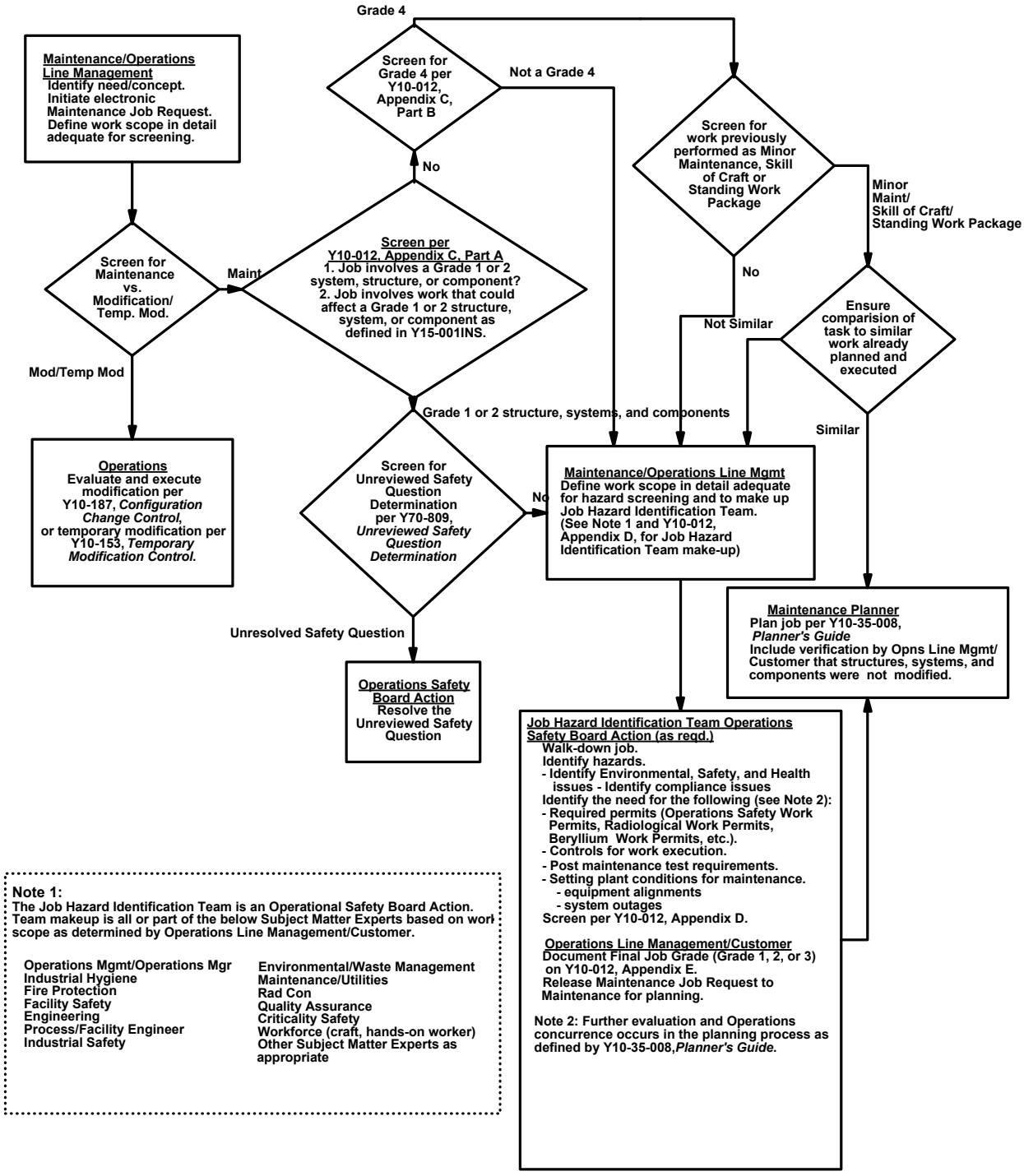
REQUIREMENT REFERENCES

- Energy Systems OP-101: *Conduct of Operations*
- Plant Procedure Y15-001INS: *Grading Criteria for Y-12 Facilities and Systems*
- Plant Procedure Y10-202: *Y-12 Integrated Safety Management Program*
- Plant Procedure Y10-153: *Temporary Modification Control*
- Plant Procedure Y10-187: *Integrated Safety and Change Control Process*
- Plant Procedure Y10-190: *New Activity Start-up Requirements*

  Plant Procedure Y70-809: *Unreviewed Safety Questions Determinations*
- Facilities Management Organization Procedure Y10-35-001: *Maintenance Program and Work Management Administration*
- Facilities Management Organization Procedure Y10-35-008: *Planner's Guide*
- *Y-12 Plant Electronic Maintenance Job Request User Guide*

NOTE: Refer to Appendix A, *Definitions*, for definitions of terms

FLOW DIAGRAM - REQUESTING MAINTENANCE WORK



*New Work Task guidance for using Y10-012 is found in Y10-190.

WHAT TO DO

related to the hazard identification and planning process.

A. Identification of Maintenance Services/Job

Operations Line Management/ Customer

1. Identify need for maintenance services/job.

2. Initiate electronic Maintenance Job Request (see Appendix B, *Electronic Maintenance Job Request Example*).

3. Define work scope in detail adequate for screening.

4. Perform screening to determine if the activity involves modification or temporary modifications to structures, systems, or components.

5. If the activity involved a modification or a temporary modification, evaluate modifications in accordance with Y10-187. Evaluate temporary modifications in accordance with Y10-153.

6. Perform initial job screening in accordance with Appendix C, *Health and Safety Hazards Identification*, part A.

7. Perform Unreviewed Safety Question Determination screening in accordance with Y70-809 for Nuclear Facility Grades 1 and 2 structures, systems, and components or systems that could affect a Grade 1 or 2 structure, system, or component.

8. Perform general screening of job grade for maintenance planning in accordance with Appendix C, part B.

9. If job is a Grade 4, perform screening for work previously performed as minor maintenance, skill of craft, or standing work package. If job is minor maintenance, skill of craft, or standing work package, proceed to Y10-35-008, *Planner s Guide*.

B. Work Scope Definition and Job Hazard Identification

WHAT TO DO

(Cont.) Operations Line Management/ Customer (Cont.)

1. Define work scope in detail adequate for hazard screening and to make up Job Hazard Identification Team.

2. Identify appropriate multi-organizational team to accomplish work scope definition and identification of health and safety hazards.

NOTE: The Job Hazard Identification Team must include operations and maintenance participation as a minimum with additional health, safety, and technical disciplines as needed. The Team should, as required, be comprised of members associated with the Operations Safety Board.

Job Hazard Identification Team/Operations Safety Board Action

3. Under the leadership of the Operations Line Management/ Customer requesting the work, conducts a health and safety hazards identification using the Health and Safety Hazards Identification methodology found in Appendix D.

4. Conduct job walk-down to identify hazards, environmental, safety, and health issues and compliance issues.

5. Identify any specific requirements/actions on the comment section of Appendix D.

6. Identify need for the following:

   - Required permits (i.e., Operations Safety Work Permit, Radiological Work Permit, Lockout/Tagout, Beryllium Work Permit, etc.)
   - Controls for work execution
   - Post-maintenance testing requirements
   - Plant conditions for maintenance (i.e., equipment alignments, system outages, etc.)

C. Coordination of Maintenance Services/Job

WHAT TO DO

(Cont.) Operations Line Manager (or designee) and Maintenance Supervisor

1. Approve the Final Job Grade determination on Appendix E.

   NOTE: The Final Job Grade will be the same as the equipment grade, except in those cases where the analysis of the work activities indicate the need for a higher grade.

2. Release Maintenance Job Request for planning.

   NOTE: Emergency Maintenance requires that the Plant Shift Superintendent and the responsible Facilities Management Organization Department Manager be notified IMMEDIATELY. During off-shifts, the emergency information should flow through the Plant Shift Superintendent and the Maintenance Shift Supervisor.

Maintenance Planner

3. Plan job using graded approach for risk/complexity per Y10-35-008, *Planner s Guide*.

   NOTE 1: Include verification by Operations Line Management/Customer that structures, systems, and components were not modified.

   NOTE 2: Documentation from hazard identification process (Appendixes C, D, E) shall be utilized in the maintenance planning process and included in the job package.

D. Record Retention

1. Completed Maintenance Job Requests are to be retained by Facilities Management Organization.

2. The original hazard identification documents from Y10-012 should become a part of the maintenance job package documentation and are retained by Facilities Management Organization.

ADMINISTRATION

A. The interpretation and the administration of this procedure is the responsibility of the Manager, Facilities Management Organization.

B. A hard copy of this procedure shall remain in the Y-12 Plant Procedures Representative's office and another copy in the Facilities Management Organization's Procedures Representative's work area. The master copy of this procedure is printed in WordPerfect, and the electronic (disk) storage is kept by the Facilities Management Organization Procedures Coordinator.

APPENDIXES

A. Definitions

B. Maintenance Job Request Example

C. Health and Safety Hazards Identification

D. Detailed Screening Questions

E. Final Job Grade

APPENDIX A
DEFINITIONS
(Page 1 of 8)

A. *Acronyms:*

1. DOE - Department of Energy

2. MJR - Maintenance Job Request

3. PMT - Postmaintenance Test

4. SSC - Structures, Systems, and Components

B. *Acceptance*: Verification by the customer or authorized representative that structures, systems, and components are in a condition suitable for the intended use at the completion of work.

C. *Checkout and Verification*: A form of Postmaintenance Test using standard maintenance practices, as well as craft skills and knowledge, to prove that equipment is operable as designed. The testing does not require the formal documentation specified for Documented Postmaintenance Test.

D. *Customer*: Equipment or facility owner (or designee), who requested maintenance services through an Maintenance Job Request.

E. *Deficiency*: Any condition that deviates from the design of structures, systems, and components and results in a degraded ability to accomplish its intended function.

F. *Emergency Maintenance/Off-Shift Response to Abnormal Event*: Any maintenance activity identified as a deficiency or a request of an emergency nature which indicates a significant deviation from the planned or expected course of events which may adversely affect the health or safety of employees or the public or which may endanger property and/or the environment. Emergency and/or off-shift activities shall be performed as authorized by the Organization/Operations/Unit Manager in consultation with the Plant Shift Superintendent. Hazard identification, hazard analysis, and execution is commensurate with the work controls necessary to handle the activity in the most expeditious manner.

G. *Equipment Owner*: The person responsible for the administrative control and operation of assigned structures, systems, and components. He/she is responsible for work-start approval, job-site inspection, and approval to start Postmaintenance Test as well as acceptance of Postmaintenance Test upon completion of Documented Postmaintenance Test.

H. *Graded-Approach Strategy*: A method for applying the appropriate level of resources based on the determined risk and importance of the structures, systems, and components.

NOTE: The equipment grade is a major factor in determining the minimum level of planning required.

1. *Structures, Systems, and Components Grade (Equipment Grade)*: Until the Equipment Owner assigns a grade to the structures, systems, and components, the following general guidelines shall be used to determine the appropriate category:

   a. *Grade 1*: This grade represents those Safety-Class structures, systems, and components whose preventive or mitigative function is necessary to protect the public from unacceptable hazardous material exposures. For nuclear facilities, safety class systems are defined in the authorization basis.

   b. *Grade 2*: This grade represents those Safety Significant structures, systems, and components whose failure could result in an acute worker fatality or serious injuries to workers. For nuclear facilities, Safety Significant structures, systems, and components are typically identified in the authorization basis documents for the facility. (Safety Significant-1 and Safety Significant-2 are both included in this category for those facilities using this categorization scheme.)

   c. *Grade 3*: This grade represents those structures, systems, and components that require formal controls for environmental, mission, normal operational personnel safety, significant defense-in-depth, but generally demand minimum rigor/control within the Configuration Management Program.

   d. *Grade 4*: This is the default grade for general plant and standard industrial structures, systems, and components that will represent most structures, systems, and components within the Y-12 Plant. Grade 4 shall not be applied to any structures, systems, and components that can impact Safety Class or Safety Significant equipment either directly or indirectly.

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H. (Cont.)

NOTE: The Final Job Grade will be the same as the equipment grade, except in those cases where the analysis of the work activities indicate the need for a higher grade.

2. *Final Job Grade*: An overall job grade, determined by consideration of the equipment grade and the health and safety hazard identification, used to indicate the level of rigor and formality required of the maintenance planning process:

   a. *Grade 1*: Any work activity involving structures, systems, and components whose preventive or mitigative function is necessary to protect the public from unacceptable hazardous material exposures, as defined in the authorization basis. Also includes any work activity that has the potential to result in unacceptable hazardous material exposure to the public.

   b. *Grade 2*: Any work activity involving structures, systems, and components whose failure could result in a worker fatality or serious injury to workers or any work activity on any structures, systems, and components where the work activity itself could result in a worker fatality or serious injury or illness to workers.

   c. *Grade 3*: Any work activity involving structures, systems, and components that:

      - Involves new hazards or hazards not previously identified
      - Requires new or revised compliance permits (job hazard analysis or Operations Safety Work Permits)
      - Job hazards outside the scope of existing procedures for health and safety
      - Job is complex/extreme technical difficulty and/or requires concurrent multiple craft personnel
      - Job not been performed before
      - Prior job execution resulted in environmental, safety, and health concerns: new requirements or controls needed
      - Craft personnel lack training, knowledge, or experience for the job
      - Could impact job performance resulting in significant programmatic impacts
      - Job task requires continuous maintenance work site supervision and/or environmental, safety, and health technical oversight
      - Job which requires a critical lift plan (a critical lift plan identifies job-specific lifting fixtures, specific types [weight limits, length, material] of rigging required for the job)

H. 2. (Cont.)

d. *Grade 4*: Any work activity involving general plant and standard industrial structures, systems, and components where the work activity itself has the potential for worker injury or illness of only a minor nature.

I. *Interim Equipment List*: A detailed list of structures, systems, and components to be included in the maintenance program. The list should include both safety-related and nonsafety-related structures, systems, and components. This list may sometimes be referred to as the master equipment list or data base.

J. *Job Category Codes*: Provide discrimination of maintenance work according to special-emphasis areas, such as Safety, Security, Special (as described on the Maintenance Job Request, and Rework; these areas are weighted in the Maintenance Importance Generator. These job category codes are assigned code letters, as described below, to be specified by the customer initiating the work.

NOTE: If not assigned by the customer, the codes S1, S2, and S3 may be assigned by the planner estimator after consultation with the customer (see Items 10 through 12 below).

1. *CA or Corrective-Action Plan Associated Jobs*: Jobs that are initiated by Corrective-Action Plan as a result of deficiencies identified by external/internal audits, surveillances, or assessments.

2. *CM or Corrective Maintenance Jobs*: Repair of failed or malfunctioning structures, systems, and components to restore them to their intended use. Structures, systems, and components requiring corrective maintenance are identified by a deficiency tag.

3. *HS or Health and Safety Upgrades*: Work necessary to bring structures, systems, and components into compliance with applicable regulations, Occupational Safety and Health Administration related upgrades, fire-protection upgrades, and radioactivity-protection related jobs.

4. *MW or Modification Work*: Planned and controlled alterations to permanent structures, systems, and components; included are improvements, upgrades, and temporary modifications.

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J. (Cont.)

5. *PM or Planned Maintenance*: Work that may consist of any of the following types of job: Calibration, Predictive Inspection, or Planned Preventive Work.

6. *RP or Post-Resumption Work*: Work that will be completed after the resumption of operation of structures, systems, and components within a facility following a forced shutdown of operations.

7. *RS or Pre-Resumption Work:* Work that must be completed prior to the resumption of operation of structures, systems, and components within a facility that is undergoing a formal restart program following a forced or voluntary shutdown.

8. *RT:* Work to support the testing of equipment within a facility that is undergoing a formal restart program.

9. *RW or Rework Job*: A job necessary to repeat for customer's satisfaction.

10. *S1 Safety Action*: Life-threatening hazards (including nuclear criticality safety) which are identified in the DOE Occurrence Reporting System (Energy Systems Procedure ESS-OP-301. Jobs classified S1 shall have a priority code of “C” (Critical).

11. *S2 Safety Action*: Possible-injury hazards (including nonoccurrence criticality safety) which are isolated by flagging and/or warning signs or which may require action to prevent injury. Jobs classified S2 shall have a priority code of “U” (Urgent).

12. *S3 Safety Action*: General safety-related jobs (1) which result from oral or written safety suggestions, safety inspections, or accident investigations and (2) for which administrative action is adequate to prevent injury as a result of the condition. Jobs classified S3 shall have a priority code of "P" (Priority).

13. *Safety Class or Security and Computer-Security Associated Jobs*: Work necessary to mitigate security risks. Jobs classified Safety Class may be assigned any priority code.

14. *Other*: Used when there is no applicable job category.

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K. *Job Priority Codes*: A series of definitions identified by the coded words Critical (C), Urgent (U), Priority (P), and Routine (R) which establish the relative priority for each Maintenance Job Request by assigning numerical weight within specified ranges of numbers in the Maintenance Importance Generator.

1. *Critical (C)*: Equipment, systems, or experiments that operate more than 90 percent of the time. Being out of service for one working day may result in imminent and significant environmental damage; potential to expose personnel to serious health and safety damage, including injury or death; breach of security; or interruption of production or experiments.

2. *Urgent (U)*: Equipment, systems, or experiments important to plant-wide goals and which when out of service may result in a significant interruption of production or experiment. Importance is great enough to justify diverting personnel from other assignments and to working overtime, on the basis of real-time circumstances.

3. *Priority (P)*: Equipment, systems, or experiments important to plant-wide goals but which have backup or redundant hardware.

4. *Routine (R)*: Equipment, systems, or experiments not meeting one of the above categories but which may be worked in the most economical manner.

L. *Maintenance*: The expenditure of resources which brings an item to conform to established specifications and/or requirements at completion; such as, alterations, calibration/ certification, demolition, fabrication, garage service, janitorial service, predictive/preventive maintenance; repair, testing, verification, and/or other such activities.

M. *Maintenance Importance Generator (MIG)*: A computerized system using predetermined rules to compare data on an Maintenance Job Request and to establish relative-importance ranking for each maintenance job.

N. *Maintenance Job Request (MJR)*: (Appendix C) A form used for obtaining maintenance services. Issued to Facilities Management Organization planner estimators, an Maintenance Job Request is used in defining, planning, and executing maintenance work.

NOTE: Janitorial services may be either an oral or written request, depending upon the job magnitude.

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O. *Operational Safety Board (OSB)*: A multi-organizational and multi-discipline board, formed and led by the Operations Manager for the purpose of assisting and advising the Operations Manager in ensuring work activities are within the safety authorization basis, activities are properly planned, and authorized controls (such as appropriate procedures and training) are identified and implemented, and the work is being executed.

P. *Operations Safety Board Action:* Hazard identification and determining the job grade for maintenance planning is an Operations Safety Board action. Operations Manager/Management approves the final job grade for maintenance planning.

Q. *Postmaintenance Test (PMT) Control Form*: The form used to provide instructions and documentation required for performing Documented Postmaintenance Test. Each type of Documented Postmaintenance Test requires a separate form (see Plant Procedure Y10-204, *Postmaintenance Testing PMT*).

R. *Postmaintenance Test (PMT)*: Documented/Formal Postmaintenance Test or standard checkout/informal, performed following maintenance, which proves that the equipment is operable and performs as designed.

S. *Safety Class (SC)*: The structures, systems, and components that are important to the protection of the health and safety of the public. The Safety Class structures, systems, and components are typically identified in an approved authorization basis document.

T. *Safety Signification (SS)*: The structures, systems, and components that are important to the protection of the health and safety of onsite personnel. The Safety Significant structures, systems, and components may be identified in two subgroups: Safety Significant 1 items which can potentially impact workers beyond the immediate area of the accident, and Safety Significant 2 items which can potentially impact facility workers in the immediate area of the accident, but do not impact workers outside the immediate area of the event. The Safety Significant 1 and Safety Significant 2 are grouped as Safety Significant in this document for grading purposes. The Safety Significant structures, systems, and components are typically identified in an approved authorization basis document.

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U. *Structures, Systems, and Components*: Structures are elements that provide support or enclosure such as buildings, free standing tanks, basins, dikes, and stacks. Systems are collections of components assembled to perform a function such as piping, cable trays, conduit, or heating, ventilation, and air conditioning. Components are items of equipment such as pumps, valves, relays, or elements of a larger array such as computer software, lengths of pipe, elbows, or reducers.

V. *Tri-N-Octyl Phosphine Oxide (ToPo)*: An extraction system located in Building 9212, C-1 Wing.

W. *Work Control Center (WCC)*: An organizational center for a designated geographical area and/or function. The center serves as a nucleus for planning, estimating, scheduling, executing, and reviewing maintenance activities, and for issuing work instructions.

APPENDIX B
ELECTRONIC MAINTENANCE JOB REQUEST EXAMPLE
(Page 1 of 2)

08/27/92	MAINTENANCE JOB REQUEST			UNCLASSIFIED PAGE 1 OF 2
Date Written: - -	Priority Code:	Work Order #:	Account #:	Job Number:
Badge:	Requester:	Phone:	Building:	Authorized By/Badge
Deliver to:	Badge:	Name:	Building: Room:	Phone:
Category Codes:	____ Corrective Maintenance ____ Other ____ Preventive Maintenance ____ Predictive Maintenance			
Required Work Permits:	____ None ____ Safety ____ Radiation ____ Electrical ____ Other (Specify)			
Required Completion Date: - -	Equipment ID/Code /	Work Location		Special QA Action: ____ (Specify)

08/27/92	MAINTENANCE JOB REQUEST			UNCLASSIFIED PAGE 2 OF 2
Date Written: - -	Priority Code:	Work Order #:	Account #:	Job Number:

Description of Work Requested
(Include specific location, drawing #, required tests, sketches, and inspections)

PLEASE BE AS SPECIFIC AS POSSIBLE

INCLUDE JOB GRADE FROM HEALTH AND SAFETY HAZARDS IDENTIFICATION.

APPENDIX B
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INSTRUCTIONS FOR COMPLETING AN ELECTRONIC MAINTENANCE JOB REQUEST

Listed below are the fields that should be completed by the requester prior to sending the MJR to Maintenance for planning and scheduling of the requested work. **Fields with an asterisk (*) are required entries for all sites and MUST be completed.** Failure to provide sufficient information will result in a delay while the additional information is obtained from the requester.

***Organization Being Requested to Perform Work -** Check appropriate Maintenance organization to which the MJR is to be sent.

***Priority Code -** Refer to code symbols and definitions in Appendix A, Section M.

***Work Order Number -** An eight digit number (X-XXXXX-XX) that is currently open in the accounting system to accept labor and material charges.

***Requester Badge Number, Name, Building, Mail Stop, Phone -** Self explanatory.

Authorized By/Badge - Name and badge number of person authorizing the work, if different from the requester.

Deliver To - Badge Number and name of the person and the location where the completed work is to be sent and/or the designated representative to be contacted for additional information.

***Category Code -** Check category which best describes the type of work to be done. An MJR can have only one category. Refer to code symbols and definitions in Appendix A, Section L.

***Permits -** Indicate whether or not a safety, electrical, or radiation (ORNL only) permit is required and specify any other permits (Excavation, etc.) that are required.

***Requested Completion Date -** Date you desire work to be completed (this is not the scheduled completion date).

Equipment ID/Code - ID Number is required for collection of repair history data. Code number identifies the equipment type (Y-12 Only).

Work Location - Building, area, room number, outside location, etc., where work is to be performed.

***QA Requirements -** Indicate whether or not there are QA Procedures to be followed and **ATTACH** the procedures to the MJR.

***Description of Work -** Be as detailed as possible. Attach a drawing or sketch of the part to be fabricated. Provide terminal manufacturer, model, type and description of problem (completely dead, screen blank, keyboard not working properly, etc.) or indicate type of heating system (gas, electric, steam), the type of unit (room, group of offices or work area, whole building, etc.) and description of problem (no heat, heating but not maintaining temperature set point, etc.).

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APPENDIX C
HEALTH AND SAFETY HAZARDS IDENTIFICATION
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Job Scope: _____

Maintenance Job Request No: _____ Job Grade: _____

GENERAL SCREENING QUESTIONS (Mark the appropriate box)
JOB GRADE FOR MAINTENANCE PLANNING

NOTE 1: If answer to any below is Yes, form an Operations Safety Board Team of appropriate safety subject matter experts based on work scope.

NOTE 2: Operations Line Management/Customer always reserves the right to place structures, systems, and components in a higher grade than determined by this process to ensure an appropriate level of control (Y15-001INS). The intent is not to grade every component onsite (e.g., office equipment) but only those necessary to ensure maintenance of the safety authorization basis and configuration management.

			Yes	No	Unable to Determine
Screening Criteria Grades 1 or 2	**A.**	**If any question in A is answered Yes, job will be planned as Grade 1 or 2 and require further Operations Safety Board Action.**			
		Does the job involve a Grade 1 or 2 system, structure, or component defined by Y15-001INS? [1]	☐	☐	☐
		Does the job have the potential to result in a Criticality Accident Alarm System inaudibility area? Appropriate compensatory action taken if required. [1]	☐	☐	☐
		Does the job involve work on structures, systems, and components that could affect Grade 1 or 2 structures, systems, and components as defined by Y15-001INS? [1]	☐	☐	☐
Screening Criteria Grade 4	**B.**	**If any question in B is answered Yes, job will require a job hazard walkdown and may require further Operations Safety Board Action (refer to Organizational Operations Safety Board Charter). If all questions in B are answered No, job will be a Grade 4.**			
		Does the job have the potential to create an unacceptable hazardous material exposure to the public?	☐	☐	☐
		Does the job have the potential to result in a worker fatality or serious injury or illness to workers?	☐	☐	☐
		Does the job involve new hazards or hazards not previously identified? [2]	☐	☐	☐
		Does the job require new or revised compliance permits, job hazard analysis, or Operations Safety Work Permits?	☐	☐	☐
		Are the job hazards outside the scope of existing procedures for health and safety?	☐	☐	☐
		Is the job complex/extreme technical difficulty and/or require concurrent multiple-craft personnel?	☐	☐	☐
		Is this the first time job has been performed?	☐	☐	☐
		Has prior job execution resulted in environmental, safety, and health concerns: new requirements or controls needed?	☐	☐	☐
		Do craft personnel lack training, knowledge, or experience for the job?	☐	☐	☐
		Could inadequate job performance result in significant programmatic impacts?	☐	☐	☐
		Does job task require continuous maintenance work site supervision and/or environmental, safety, and health technical oversight	☐	☐	☐
		Does the job require a critical lift plan?	☐	☐	☐

If any Unable to Determine boxes are marked, utilize Appendix D to determine answer to question.

[1]Nuclear Facilities require USQD process.
[2]Authorization basis changes in Nuclear Facilities require USQD.

Subject: Hazard Identification Planning for Maintenance and New Work Tasks

Hazard Identification is an Operations Safety Board Action. Team makeup is all or part of the below subject matter experts based on work scope as determined by Operations Line Management/Customer.

- ☐ **Operations Line Management/Customer**
- ☐ **Industrial Hygiene**
- ☐ **Fire Protection**
- ☐ **Facility Safety**
- ☐ **Engineering**
- ☐ **Process/Facility Engineer**
- ☐ **Industrial Safety**
- ☐ **Environmental/Waste Management**
- ☐ **Maintenance/Utilities**
- ☐ **Radiological Control**
- ☐ **Quality Assurance**
- ☐ **Criticality Safety**
- ☐ **Workforce**
- ☐ **Other subject matter experts (as appropriate)**

APPENDIX D
DETAILED SCREENING QUESTIONS
(Page 1 of 5)

Detailed Job Scope: _____

_____

_____

Maintenance Job Request No: _____ **Date:** _____

Note: Job Hazard Identification Team to utilize during walkdown or non-walkdown - completed by responsible Operations Manager/Management after completing detailed work scope.

Note: Permits required include Operations Safety Work Permit, Radiological Work Permit, Lockout/Tagout, confined space, Beryllium Work Permit, compliance, etc.

Hazard Identification is an Operations Safety Board Action. Team makeup is all or part of the below subject matter experts based on work scope as determined by Operations Manager/Management.

- ☐ **Operations Line Management/Customer**
- ☐ **Industrial Hygiene**
- ☐ **Fire Protection**
- ☐ **Facility Safety**
- ☐ **Engineering**
- ☐ **Process/Facility Engineer**
- ☐ **Industrial Safety**
- ☐ **Environmental/Waste Management**
- ☐ **Maintenance/Utilities**
- ☐ **Radiological Control**
- ☐ **Quality Assurance**
- ☐ **Criticality Safety**
- ☐ **Workforce**
- ☐ **Other subject matter experts (as appropriate)**

Document Final Grade on Appendix E **INDUSTRIAL SAFETY:**	**Applies**		**Reference Procedures**	**Identify Permits Required**
	Yes	**No**		
Hoisting/rigging operations or movement of loads which if dropped, upset, or collided could result in serious injury, property damage, release, etc.			**SH-115PD 70-676**	
Work at elevations greater than 4 feet which would require protection by approved, standard, fall-protective structures or equipment such as railings, complete scaffolding, manufacturer s recommended fall protection techniques.			**SH-105PD**	
Work in area where the structural soundness of the walking/working surface may be questionable, such as attics, certain roof tops, or other non-maintained structures.			**SH-120PD**	
Work over/adjacent to open tanks, vats, ponds, or mechanized equipment where there is potential to fall into these hazards.			**SH-105PD**	
Work over or near water where the potential for drowning exists.			**SH-120PD SH-105PD**	
Work which involves the possibility of equipment unexpectedly re-energizing or releasing stored energy which requires mechanical isolation (lockout) of an energy source such as steam, process liquid, rotating equipment, etc.			**Y73-107**	

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	Applies Yes	Applies No	Reference Procedures	Identify Permits Required
Breaks into process lines or systems which have the potential for containing residual materials, if the presence of residual material cannot be definitely identified appropriate precautions should be taken.			**Y73-107 SH-151PD SH-116PD**	
Work in trenches or excavations 4 feet or greater in depth			**Y70-378 SH-138PD**	
Work where there is possibility of material falling from overhead or low overhead clearances (head injury hazards).			**SH-116PD**	
Open chemical transfer or transport operations.			**SH-151PD SH-116PD**	
Work involving the use of unique or specialized equipment such as crane-held personnel baskets			**SH-115PD SH-105PD**	
Tasks on or adjacent to roadways where there are hazards from the co-mingling of vehicle traffic and the workers or their equipment			**SH-120PD**	
Tasks producing or involving flying chips, particles, dusts, which create eye hazards.			**SH-116PD**	
Handling sharp objects.			**SH-116PD**	
Floor, wall, ceiling or ground penetrations where there is the possibility of encountering hidden utilities.			**Y73-107 Y70-378**	
Tasks involving slick walking surfaces or other trip hazards.			**SH-120PD**	
Tasks involving machine guarding deficiencies such as exposed points of operation or in-running pinch points or other mechanical hazards.			**SH-120PD**	
<u>ELECTRICAL</u>: Work which could place personnel, or any conductive objects held by personnel 15 feet or less from overhead high voltage electrical power lines.			**Y70-528 Y73-107 SH-117PD SH-109INS**	
Work on or near exposed, energized electrical conductors or equipment (>50 volts) where there is potential for accidental contact.			**Y70-528 Y73-107 SH-117PD SH-109INS**	
Use of electrical equipment in wet or damp locations.			**70-055 SH-117PD SH-109INS**	
Floor, wall, ceiling or ground penetrations which could contact hidden electrical conductors.			**Y70-378 Y73-107**	
Work which requires electrical isolation of component.			**Y73-107**	

APPENDIX D

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	Applies Yes	Applies No	Reference Procedures	Identify Permits Required
Working conditions which could be damaging to electrical equipment (e.g., equipment/cords exposed to abrasive or corrosive materials).			**SH-117PD 70-055**	
Electrical equipment used in hazardous locations. (Explosive)			**SH-117PD**	
<u>RADIATION CONTROL</u>: **Work which involves exposure to, or a potential for exposure to, ionizing radiation or radioactive materials, including:** **1) Work in posted Radiological Areas;** **2) Hands-on work with radioactive or radioactively contaminated material, surfaces, or equipment;** **3) Work requiring breaks into systems containing radioactive or radioactively contaminated material;** **4) Work on or in the vicinity of radioactive sources or radiation generating devices such as X-ray machines; or** **5) Any digging or surface destruction inside the posted Controlled Area.**			**Y75 Series**	
<u>INDUSTRIAL HYGIENE</u>: **Entry into an enclosed area that has the following characteristics:** **1) Primary functions other than human occupancy** **2) Restricted entry and exit; and** **2) Potential or know hazards**			**SH-138PD**	
Tasks where there is a potential to generate toxic dusts, mists, fumes, gases, or fibers, such as: **1) Painting;** **2) Abrasive blasting;** **3) Welding/heating metals which might release toxics;** **4) Welding/heating metals know or suspected to be painted or coated;** **5) Cleaning with solvents;** **6) Open chemical transfers or handling;** **7) Operation of combustion engines in indoor or poorly ventilated spaces;** **8) Removal of disturbance of asbestos, fibrous glass, or other hazardous fiber; or** **9) Any other tasks which require some form of respiratory protective device to be worn.**			**SH-151PD**	
Work involving potential exposure to beryllium.			**SH-201PD**	
Work involving potential exposure to lead.			**Y70-219**	
Work involving potential exposure to mercury.			**Y70-218**	
Work with carcinogens.			**SH-140PD**	
Work in extreme heat or cold conditions.			**SH-134PD**	

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	Applies Yes	Applies No	Reference Procedures	Identify Permits Required
Work involving or producing high noise levels.			**Y70-203 SH-121PD**	
Exposure to ultra-violet light energy source.			**SH-116PD**	
Use of lasers.			**IH-114**	
Use, handling, or storage of compressed gases or compressed gas cylinders.			**SH-112PD Y70-400**	
Manual lifting of heavy or awkward loads.			**SH-133PD**	
<u>NUCLEAR CRITICALITY SAFETY</u>: Any Task in a fissile control area or adjacent to a fissile control area that could in any way impact a fissile material activity. This includes work which impacts Material Access Areas.			**Y70-150**	
<u>ERGONOMICS</u>: Repetitive motion activities, awkward postures, excessive forces.			**SH-133PD**	
Is lighting inadequate in the area in which the task will be performed?			**SH-120PD**	
<u>FIRE PREVENTION/PROTECTION</u>: Tasks which could produce sparks or open flames in proximity to flammable compressed gases or flammable liquids.			**70-250 Y70-255 Y70-257**	
Dispensing of flammable liquids where requirements for bonding, grounding, containers, ventilation, and location have not been documented and approved.			**70-252**	
Fire Alarm, Smoke Detection, Heat Detection, Supervisory Fire Alarms, or Sprinkler Planned Outage			**70-250 70-251**	
Use of roofing equipment involving open flame torches or tar kettles with fuel-fired burners.			**70-250 Y70-255**	
Use, handling or storage of explosives.			**SH-175PD**	
Activities which impact the LIFE SAFETY EGRESS routes such as: blocking of exit aisles, exit doors, or stairways.			**70-250 70-251**	

APPENDIX D
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	Applies Yes	Applies No	Reference Procedures	Identify Permits Required
Cutting, welding, burning, or other hotwork in the following high hazard areas: **1) On coal conveyors or in coal yard;** **2) On or within 50 feet of cooling towers;** **3) In flammable/combustible liquid storage areas;** **4) In attics or crawl spaces;** **5) In warehouse or storage areas, including interior and immediate area around 9720-5;** **6) On tanks, vessels, systems which previously or presently contain flammable or combustible liquids, gases, or other materials (such as metal fines);** **7) On oxygen storage tanks or piping;** **8) Near vital electronic equipment;** **9) In or on non-sprinklered structures;** **10) In pits or areas having potential explosive atmospheres such as grease pits, sewer, or storm piping;** **11) Primary extraction 9212;** **12) Secondary extraction 9212;** **13) Tri-N-Octyl Phosphine Oxide 9212.**			**Y70-255** **FP-111**	
Work which involves proximity to heavy sparks, molten materials, arcs, or flames which could cause thermal burns or ignite clothing.			**Y70-255** **SH-116PD**	
OTHER CONDITIONS: **Use of equipment in non-typical ways such as deviations from standard operating instructions or owner s manual.**			**70-525** **SH-120PD**	
Tasks where there are uncertainties about the condition or suitability of tools, equipment, systems, etc.			**70-525** **SH-120PD**	
Tasks which present new or unpredictable hazards to other persons in the work area.			**70-525** **SH-120PD**	
Tasks which impact systems designated in a facilities Safety Analysis Report as having Limiting Conditions or Operations parameters. (i.e., any tasks which could cause a deviation from the Limiting Conditions or Operations.)			**Y70-800** **Y70-809**	
Tasks that could create releases of toxic/hazardous material to off-site personnel, environment or plant workers.			**70-525** **SH-120PD**	
Hazards involved when the structures, systems, or components require documented post-maintenance testing prior to acceptance.			**See Note.**	
Does activity involve use of or work on ASME certified pressure vessel?			**ASME** **SH-112PD**	

NOTE: Operations Line Management/Customer and Maintenance will define post-maintenance testing requirements.

Comments Section: _____

APPENDIX E

FINAL JOB GRADE

The final overall grade of the job or work activity is determined by consensus opinion of the Review Team after considering the results of the General Screening Questions and Detailed Screening Questions (if applicable). The Operations Line Management/Customer and Maintenance Supervisor/Planner must approve the final overall job grade and sign-off accordingly.

The final overall job grade will be the same as the equipment grade, except in those cases when the analysis of the work activities indicates the need for a higher grade.

Maintenance Job Request No. _____

(Circle one)

1. **Any work activity involving structures, systems, and components whose preventive or mitigative function is necessary to protect the public from unacceptable hazardous material exposures, as defined in the authorization basis. Also includes any work activity, if conducted without effective controls, that has the potential to result in unacceptable hazardous material exposure to the public.**

2. **Any work activity involving structures, systems, and components whose failure could result in a worker fatality or serious injury to workers or any work activity on any structures, systems, and components where the work activity itself, if conducted without effective controls, could result in a worker fatality or serious injury or illness to workers.**

3. **Any work activity involving structures, systems, and components that:**

   Involves new hazards or hazards not previously identified
   Requires new or revised compliance permits, Job Hazard Analysis or Operations Safety Work Permits
   Job hazards outside the scope of existing procedures for health and safety
   Job is complex/extreme technical difficulty and/or requires concurrent multiple craft personnel
   Job not been performed before
   Prior job execution resulted in environmental, safety, and health concerns: new requirements or controls needed
   Craft personnel lack training, knowledge, or experience for the job
   Could impact job performance resulting in significant programmatic impacts
   Job task requires continuous maintenance work site supervision and/or environmental, safety, and health technical oversight
   Jobs which require a critical lift plan

4. **Any work activity involving general plant and standard industrial structures, systems, and components where the work activity itself has the potential for worker injury or illness of only a minor nature.**

Date: _____

APPROVED: Operations Line Management/Customer _____

Maintenance Supervisor _____

Maintenance Planner _____